

Wisconsin's 2019 open water sportfishing effort and harvest from Lake Michigan and Green Bay

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Summary – The sport fishery in Wisconsin waters of Lake Michigan and Green Bay was documented from March 1, 2019 through November 20, 2019. Fishing effort, harvest, and harvest-rates were determined from 1) a stratified-random creel survey of launched-boat, pier, shore, and stream anglers; 2) a randomized mail survey of moored-boat anglers; and 3) mandatory charter-boat reporting. For a detailed description of methods see Eggold 1995.

Anglers spent an estimated 2,362,083 hours fishing on Lake Michigan and Green Bay during 2019 with boat-angler effort at 1,974,562 hours, or 84% of the total hours. Fishing effort during 2019 was slightly lower than effort in 2018 and was approximately 9% lower than the ten-year average.

The estimated harvest of 377,819 fish was dominated by walleye (92,236) followed by yellow perch (87,800). Walleye and yellow perch harvest combined was 48% of the total estimated harvest. The boat fishery, comprised of launched-boat, moored-boat, and charter-boat anglers, dominated the fishery by harvesting an estimated 346,227 fish, which was 92% of the total harvest and again led by walleye (83,058) followed by yellow perch (80,218). Pier anglers harvested 3,009 fish, primarily yellow perch (1,592) and Chinook salmon (442), followed by smallmouth bass (367). Stream anglers harvested 16,351 fish, primarily walleye (8,894) followed by rainbow trout (2,579) and Chinook salmon (2,539). Shore anglers harvested 10,232 fish, primarily yellow perch (5,990) followed by Chinook salmon (1,446) and brown trout (1,263). Overall harvest-rates were highest for walleye at 0.0390 fish/hour, followed by yellow perch (0.0372 fish/hour) and Chinook salmon (0.0267 fish/hour).

The 2019 Chinook harvest of 63,043 fish was lower than the previous year's harvest and approximately 62% below the ten-year average. The overall harvest rate for salmonids in 2019 was 0.0795, down from the ten-year average harvest rate.

Coho harvest in 2019 was 32,197 fish. While coho harvest is typically variable, harvest drastically declined north of Milwaukee, WI, suggesting that coho were not traveling

further north, influencing harvest numbers. The 2019 rainbow trout harvest of 50,258 fish was approximately 22% below the ten-year average. Brown trout harvest in 2019 was 8,013, which was 53% below the ten-year average. A total of 34,197 lake trout were harvested in 2019, which was 35% above the ten-year average.

The 2019 harvest of yellow perch in Green Bay was 84,200 which was 43% below the ten-year average but higher than harvest in 2016. The Lake Michigan yellow perch harvest in 2019 was 3,600 fish. Although this is almost 68% below the ten-year average, it is the highest harvest of yellow perch in Lake Michigan since 2015. Perch harvest in Lake Michigan remains on an overall downward trend observed since 1993. The sport catch in 2019 was primarily comprised of the 2016 year-class. Age was assigned using the anal spines of 106 Lake Michigan angler-caught yellow perch during 2019. The 2016 year-class represented 76% of the total. The 2015 year-class, which comprised the majority of the catch in 2018, represented 15% of the total harvest.

In 2019, the standard weight of a 30-inch Chinook was 10.9 pounds, which was a slight increase from 2018 and approximately 10% above the ten-year average. The standard weight of a 23-inch Coho was 4.5 pounds, which was approximately 11% above the ten-year average. The standard weight of a 25-inch rainbow trout was 4.4 pounds, which was 5% above the ten-year average. The standard weight of a 27-inch lake trout was 6.3 pounds, which was 10% above the ten-year average. The standard weight of a 25-inch brown trout was 5.5 pounds, which was almost 34% above the ten-year average. Although overall harvest was lower in 2019 than the previous year, fish that were harvested were overall larger.

REFERENCES

Eggold, B.T. 1995. Wisconsin's 1995 open water sportfishing effort and catch from Lake Michigan and Green Bay. Wisconsin Department of Natural Resources, Plymouth, Wisconsin. 19 pages.

Table 1. Estimated angler effort (hours) by location in Wisconsin waters of Lake Michigan and Green Bay during March through December of 2010 through 2019. Standard deviations are in Italics.

Location	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average
Kenosha Co.	146,762 <i>8,287</i>	116,032 <i>5,801</i>	135,980 <i>2,851</i>	128,467 <i>5,199</i>	129,736 <i>5,422</i>	101,058 <i>4,990</i>	108,874 <i>5,432</i>	90,700 <i>3,810</i>	92,655 <i>4,185</i>	99,315 <i>4,417</i>	114,958 <i>5,223</i>
Racine Co.	161,959 <i>9,422</i>	151,135 <i>7,225</i>	131,342 <i>10,091</i>	121,473 <i>8,394</i>	122,082 <i>7,073</i>	102,948 <i>9,243</i>	106,901 <i>7,928</i>	95,490 <i>6,787</i>	110,575 <i>11,954</i>	98,387 <i>6,374</i>	120,229 <i>8,609</i>
Milwaukee Co.	340,503 <i>14,174</i>	276,843 <i>15,204</i>	324,011 <i>14,704</i>	290,544 <i>11,332</i>	255,140 <i>10,894</i>	267,451 <i>10,279</i>	295,517 <i>12,743</i>	267,191 <i>14,736</i>	233,031 <i>13,192</i>	180,123 <i>8,028</i>	273,035 <i>12,724</i>
Ozaukee Co.	215,809 <i>10,210</i>	256,961 <i>19,364</i>	208,450 <i>12,203</i>	203,861 <i>9,749</i>	189,524 <i>9,532</i>	172,896 <i>8,481</i>	215,153 <i>13,880</i>	179,360 <i>13,185</i>	167,683 <i>10,435</i>	156,411 <i>10,337</i>	196,611 <i>12,117</i>
Sheboygan Co.	238,132 <i>12,909</i>	199,350 <i>9,537</i>	225,384 <i>11,503</i>	205,563 <i>9,122</i>	214,111 <i>10,191</i>	216,378 <i>11,974</i>	210,632 <i>11,803</i>	179,246 <i>9,027</i>	163,946 <i>9,813</i>	176,289 <i>16,500</i>	202,903 <i>11,444</i>
Manitowoc Co.	206,362 <i>9,591</i>	179,525 <i>8,336</i>	212,739 <i>10,796</i>	177,336 <i>8,230</i>	187,654 <i>9,404</i>	168,961 <i>8,303</i>	183,440 <i>10,233</i>	139,241 <i>7,010</i>	141,366 <i>8,009</i>	132,408 <i>6,735</i>	172,903 <i>8,755</i>
Kewaunee Co.	382,614 <i>22,200</i>	323,860 <i>12,740</i>	311,407 <i>7,780</i>	372,305 <i>14,837</i>	352,498 <i>15,032</i>	367,149 <i>15,581</i>	288,935 <i>13,131</i>	318,589 <i>13,337</i>	327,150 <i>13,794</i>	222,088 <i>9,598</i>	326,660 <i>14,273</i>
E. Door Co.	213,147 <i>14,552</i>	151,136 <i>7,001</i>	204,549 <i>23,159</i>	195,887 <i>12,008</i>	172,324 <i>8,761</i>	218,354 <i>19,796</i>	204,769 <i>10,839</i>	193,014 <i>9,108</i>	187,941 <i>10,802</i>	181,342 <i>12,741</i>	192,246 <i>13,745</i>
Green Bay	936,050 <i>42,151</i>	886,143 <i>40,835</i>	771,724 <i>26,553</i>	1,084,541 <i>45,814</i>	990,101 <i>46,164</i>	1,127,400 <i>36,334</i>	1,016,928 <i>35,232</i>	1,087,056 <i>40,209</i>	1,032,530 <i>34,218</i>	1,115,720 <i>38,818</i>	1,004,819 <i>39,032</i>
Total Effort	2,841,338 <i>56,591</i>	2,540,985 <i>52,261</i>	2,525,586 <i>45,010</i>	2,779,977 <i>54,178</i>	2,613,170 <i>53,991</i>	2,742,595 <i>49,548</i>	2,631,149 <i>47,145</i>	2,549,887 <i>49,597</i>	2,456,877 <i>45,624</i>	2,362,083 <i>48,065</i>	2,604,365 <i>50,338</i>

Table 2. Estimated harvest and total harvest-rate (number per hour, all anglers combined) of salmonids in Wisconsin waters of Lake Michigan and Green Bay during March through December of 2010 through 2019. Standard deviations are in Italics.

Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average
Coho Salmon	42,445 <i>2,039</i>	157,367 <i>11,432</i>	73,395 <i>3,114</i>	88,933 <i>3,922</i>	52,297 <i>6,577</i>	41,067 <i>4,339</i>	125,748 <i>5,572</i>	119,788 <i>7,135</i>	85,459 <i>5,176</i>	32,197 <i>2,003</i>	81,870 <i>5,786</i>
Chinook Salmon	315,294 <i>8,164</i>	169,752 <i>4,083</i>	390,385 <i>9,058</i>	144,807 <i>4,330</i>	130,231 <i>3,562</i>	114,528 <i>3,549</i>	138,110 <i>4,725</i>	84,163 <i>3,132</i>	84,228 <i>3,262</i>	63,043 <i>4,012</i>	163,454 <i>16,379</i>
Rainbow Trout	49,121 <i>2,023</i>	75,442 <i>2,588</i>	75,981 <i>2,592</i>	58,429 <i>1,978</i>	72,724 <i>2,259</i>	59,127 <i>1,714</i>	77,004 <i>2,962</i>	66,599 <i>2,661</i>	57,141 <i>2,011</i>	50,258 <i>3,105</i>	64,183 <i>2,429</i>
Brown Trout	13,029 <i>1,114</i>	9,936 <i>846</i>	21,337 <i>1,768</i>	17,052 <i>1,273</i>	23,511 <i>1,813</i>	20,335 <i>1,894</i>	23,885 <i>2,632</i>	20,404 <i>1,715</i>	12,625 <i>1,116</i>	8,013 <i>969</i>	17,013 <i>1,601</i>
Brook Trout	0 <i>0</i>	26 <i>0</i>	18 <i>0</i>	0 <i>0</i>	4 <i>0</i>						
Lake Trout	17,483 <i>775</i>	17,788 <i>1,236</i>	29,094 <i>1,261</i>	27,246 <i>1,003</i>	25,424 <i>1,098</i>	35,778 <i>1,482</i>	19,046 <i>865</i>	20,345 <i>1,115</i>	26,747 <i>1,236</i>	34,197 <i>2,438</i>	25,315 <i>1,326</i>
Total Harvest	437,372 <i>8,760</i>	430,311 <i>12,502</i>	590,210 <i>10,158</i>	336,467 <i>6,406</i>	304,187 <i>8,104</i>	270,835 <i>6,285</i>	383,793 <i>8,356</i>	311,299 <i>8,484</i>	266,200 <i>6,652</i>	187,708 <i>6,052</i>	351,111 <i>26,554</i>
Harvest-Rate	0.1539	0.1693	0.2337	0.1210	0.1164	0.0988	0.1459	0.1221	0.1083	0.0795	0.1348

Table 3. Estimated harvest and total harvest-rate (number per hour, all anglers combined) of yellow perch in Wisconsin waters of Lake Michigan and Green Bay during March through December of 2009 through 2018. Standard deviations (estimates) are in Italics.

Location	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average
Green Bay	225,995 <i>21,042</i>	254,942 <i>24,973</i>	148,980 <i>13,685</i>	221,158 <i>18,974</i>	117,012 <i>12,283</i>	98,263 <i>10,029</i>	76,281 <i>9,289</i>	117,412 <i>12,404</i>	115,896 <i>11,044</i>	84,200 <i>15,389</i>	155,100 <i>16,065</i>
Harvest-Rate	0.2414	0.2877	0.1930	0.2039	0.1182	0.0872	0.0750	0.1080	0.1122	0.0755	0.1502
Lake Michigan	51,265 <i>4,787</i>	16,982 <i>2,296</i>	9,115 <i>1,071</i>	8,796 <i>1,221</i>	9,277 <i>1,108</i>	5,257 <i>1,000</i>	2,089 <i>586</i>	2,481 <i>537</i>	4,026 <i>787</i>	3,600 <i>882</i>	15,357 <i>1,873</i>
Harvest-Rate	0.0269	0.0103	0.0052	0.0052	0.0057	0.0033	0.0013	0.0017	0.0028	0.0029	0.0058
Total Harvest	277,260 <i>21,579</i>	271,924 <i>25,078</i>	158,095 <i>13,727</i>	229,954 <i>19,013</i>	126,289 <i>12,333</i>	103,520 <i>10,079</i>	78,370 <i>9,307</i>	119,893 <i>12,416</i>	119,922 <i>11,072</i>	87,800 <i>15,414</i>	166,180 <i>16,238</i>
Harvest-Rate	0.0976	0.1070	0.0626	0.0827	0.0483	0.0377	0.0298	0.0470	0.0488	0.0372	0.0638

Note: Table 3 reflects that some Door County sites represent Green Bay for yellow perch harvest statistics.

Table 4. Estimated harvest-rate (harvest per hour), harvest and effort for all survey areas and **ALL FISHERY TYPES** for Wisconsin waters of Lake Michigan and Green Bay during 2019. Standard deviations are in italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0136	545 <i>353</i>	3,238 <i>436</i>	11,998 <i>1,065</i>	8,955 <i>687</i>	3,611 <i>373</i>	3,850 <i>1,397</i>	0 <i>0</i>	32,197 <i>2,003</i>
Chinook Salmon	0.0267	49 <i>31</i>	302 <i>71</i>	9,060 <i>705</i>	20,426 <i>1,458</i>	18,064 <i>1,250</i>	15,142 <i>3,450</i>	0 <i>0</i>	63,043 <i>4,012</i>
Rainbow Trout	0.0213	2,575 <i>429</i>	1,009 <i>187</i>	10,619 <i>619</i>	18,932 <i>1,419</i>	13,734 <i>820</i>	3,389 <i>2,520</i>	0 <i>0</i>	50,258 <i>3,105</i>
Brown Trout	0.0034	3,025 <i>525</i>	705 <i>222</i>	65 <i>20</i>	629 <i>156</i>	707 <i>150</i>	2,854 <i>752</i>	28 <i>31</i>	8,013 <i>969</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0145	166 <i>61</i>	3,467 <i>267</i>	8,298 <i>641</i>	10,676 <i>970</i>	6,628 <i>351</i>	4,962 <i>2,096</i>	0 <i>0</i>	34,197 <i>2,438</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0018	1,402 <i>464</i>	1,498 <i>445</i>	19 <i>14</i>	326 <i>229</i>	354 <i>142</i>	539 <i>189</i>	0 <i>0</i>	4,138 <i>722</i>
White Perch	0.0001	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	314 <i>315</i>	0 <i>0</i>	0 <i>0</i>	314 <i>315</i>
Smallmouth Bass	0.0024	192 <i>234</i>	1,712 <i>648</i>	679 <i>267</i>	185 <i>100</i>	1,492 <i>459</i>	1,363 <i>675</i>	0 <i>0</i>	5,623 <i>1,107</i>
Yellow Perch	0.0372	232 <i>118</i>	179 <i>178</i>	7,154 <i>1,912</i>	53,566 <i>14,860</i>	19,121 <i>3,901</i>	5,756 <i>1,924</i>	1,792 <i>0</i>	87,800 <i>15,602</i>
Walleye	0.0390	16,683 <i>2,564</i>	18,789 <i>4,265</i>	4,826 <i>1,173</i>	26,241 <i>5,667</i>	19,101 <i>2,968</i>	6,168 <i>1,131</i>	428 <i>27</i>	92,236 <i>8,267</i>
Total Harvest	0.1600	24,869 <i>2,729</i>	30,899 <i>4,381</i>	52,718 <i>2,744</i>	139,936 <i>16,080</i>	83,126 <i>5,184</i>	44,023 <i>5,535</i>	2,248 <i>41</i>	377,819 <i>18,715</i>
Angler Hours		334,172 <i>21,321</i>	288,683 <i>21,568</i>	367,796 <i>14,618</i>	588,580 <i>23,467</i>	449,448 <i>17,594</i>	330,121 <i>17,787</i>	3,283 <i>510</i>	2,362,083 <i>48,065</i>

Table 5. Estimated harvest-rate (harvest per hour), harvest and effort for the **BOAT FISHERY** with all surveys combined for Wisconsin waters of Lake Michigan and Green Bay during 2019. Standard deviations are in italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0161	518 <i>353</i>	3,225 <i>436</i>	11,998 <i>1,065</i>	8,955 <i>687</i>	3,611 <i>373</i>	3,582 <i>1,395</i>	0 <i>0</i>	31,889 <i>2,001</i>
Chinook Salmon	0.0287	49 <i>31</i>	294 <i>71</i>	9,060 <i>705</i>	20,426 <i>1,458</i>	17,627 <i>1,234</i>	11,160 <i>3,404</i>	0 <i>0</i>	56,616 <i>3,968</i>
Rainbow Trout	0.0241	80 <i>65</i>	913 <i>184</i>	10,576 <i>617</i>	18,926 <i>1,419</i>	13,734 <i>820</i>	3,295 <i>2,520</i>	0 <i>0</i>	47,524 <i>3,075</i>
Brown Trout	0.0025	1,959 <i>443</i>	585 <i>216</i>	61 <i>19</i>	602 <i>153</i>	601 <i>139</i>	1,095 <i>463</i>	0 <i>0</i>	4,903 <i>707</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0173	166 <i>61</i>	3,467 <i>267</i>	8,298 <i>641</i>	10,670 <i>970</i>	6,628 <i>351</i>	4,962 <i>2,096</i>	0 <i>0</i>	34,191 <i>2,438</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0014	674 <i>322</i>	1,041 <i>399</i>	19 <i>14</i>	326 <i>229</i>	276 <i>128</i>	472 <i>186</i>	0 <i>0</i>	2,808 <i>605</i>
White Perch	0.0002	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	314 <i>315</i>	0 <i>0</i>	0 <i>0</i>	314 <i>315</i>
Smallmouth Bass	0.0024	0 <i>0</i>	1,647 <i>648</i>	617 <i>263</i>	95 <i>83</i>	1,013 <i>429</i>	1,334 <i>674</i>	0 <i>0</i>	4,706 <i>1,065</i>
Yellow Perch	0.0406	0 <i>0</i>	179 <i>178</i>	5,073 <i>1,724</i>	51,667 <i>14,840</i>	18,692 <i>3,841</i>	4,607 <i>1,854</i>	0 <i>0</i>	80,218 <i>15,552</i>
Walleye	0.0421	7,878 <i>1,250</i>	18,440 <i>4,243</i>	4,826 <i>1,173</i>	26,241 <i>5,667</i>	19,101 <i>2,968</i>	6,168 <i>1,131</i>	404 <i>0</i>	83,058 <i>7,657</i>
Total Harvest	0.1753	11,324 <i>1,413</i>	29,791 <i>4,354</i>	50,528 <i>2,615</i>	137,908 <i>16,062</i>	81,597 <i>5,132</i>	36,675 <i>5,449</i>	404 <i>0</i>	346,227 <i>18,378</i>
Angler Hours		194,957 <i>18,609</i>	267,385 <i>21,499</i>	339,312 <i>14,457</i>	554,481 <i>23,338</i>	409,727 <i>17,365</i>	207,717 <i>16,461</i>	983 <i>0</i>	1,974,562 <i>46,131</i>

Table 6. Estimated harvest-rate (harvest per hour), harvest and effort for the **PIER FISHERY** with all survey areas combined for Wisconsin waters of Lake Michigan and Green Bay during 2019. Standard deviations are in italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0006	0 <i>0</i>	5 <i>5</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	49 <i>42</i>	0 <i>0</i>	54 <i>42</i>
Chinook Salmon	0.0046	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	83 <i>54</i>	359 <i>129</i>	0 <i>0</i>	442 <i>140</i>
Rainbow Trout	0.0005	9 <i>0</i>	0 <i>0</i>	0 <i>0</i>	6 <i>6</i>	0 <i>0</i>	34 <i>25</i>	0 <i>0</i>	49 <i>27</i>
Brown Trout	0.0015	65 <i>35</i>	0 <i>0</i>	0 <i>0</i>	27 <i>29</i>	17 <i>16</i>	35 <i>22</i>	0 <i>0</i>	144 <i>53</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0001	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	6 <i>6</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	6 <i>6</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0007	40 <i>40</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	31 <i>21</i>	0 <i>0</i>	71 <i>45</i>
White Perch	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Smallmouth Bass	0.0038	0 <i>0</i>	65 <i>60</i>	62 <i>48</i>	0 <i>0</i>	211 <i>121</i>	29 <i>29</i>	0 <i>0</i>	367 <i>146</i>
Yellow Perch	0.0165	0 <i>0</i>	0 <i>0</i>	440 <i>191</i>	1,073 <i>712</i>	20 <i>20</i>	59 <i>45</i>	0 <i>0</i>	1,592 <i>738</i>
Walleye	0.0030	0 <i>0</i>	284 <i>152</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	284 <i>152</i>
Total Harvest	0.0313	114 <i>53</i>	354 <i>163</i>	502 <i>197</i>	1,112 <i>713</i>	331 <i>135</i>	596 <i>151</i>	0 <i>0</i>	3,009 <i>785</i>
Angler Hours		7,334 <i>1,322</i>	7,000 <i>1,107</i>	11,024 <i>1,215</i>	18,040 <i>1,986</i>	23,324 <i>2,322</i>	29,380 <i>4,594</i>	115 <i>115</i>	96,217 <i>5,908</i>

Table 7. Estimated harvest-rate (harvest per hour), harvest and effort for the **SHORE FISHERY** with all survey areas combined for Wisconsin waters of Lake Michigan and Green Bay during 2019. Standard deviations are in italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0014	27 <i>18</i>	8 <i>8</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	96 <i>50</i>	0 <i>0</i>	131 <i>54</i>
Chinook Salmon	0.0157	0 <i>0</i>	8 <i>8</i>	0 <i>0</i>	0 <i>0</i>	354 <i>190</i>	1,084 <i>283</i>	0 <i>0</i>	1,446 <i>341</i>
Rainbow Trout	0.0011	29 <i>20</i>	11 <i>11</i>	43 <i>37</i>	0 <i>0</i>	0 <i>0</i>	23 <i>17</i>	0 <i>0</i>	106 <i>47</i>
Brown Trout	0.0137	899 <i>271</i>	120 <i>53</i>	4 <i>4</i>	0 <i>0</i>	89 <i>53</i>	151 <i>67</i>	0 <i>0</i>	1,263 <i>289</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0102	427 <i>219</i>	457 <i>196</i>	0 <i>0</i>	0 <i>0</i>	18 <i>16</i>	36 <i>22</i>	0 <i>0</i>	938 <i>295</i>
White Perch	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Smallmouth Bass	0.0039	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	90 <i>56</i>	268 <i>111</i>	0 <i>0</i>	0 <i>0</i>	358 <i>124</i>
Yellow Perch	0.0649	232 <i>118</i>	0 <i>0</i>	1,641 <i>805</i>	826 <i>278</i>	409 <i>189</i>	1,090 <i>512</i>	1,792 <i>0</i>	5,990 <i>1,018</i>
Walleye	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Total Harvest	0.1108	1,614 <i>369</i>	604 <i>204</i>	1,688 <i>806</i>	916 <i>284</i>	1,138 <i>295</i>	2,480 <i>592</i>	1,792 <i>0</i>	10,232 <i>1,159</i>
Angler Hours		17,485 <i>1,919</i>	6,232 <i>826</i>	7,782 <i>1,356</i>	12,212 <i>1,267</i>	11,091 <i>1,371</i>	36,147 <i>2,747</i>	1,380 <i>460</i>	92,329 <i>4,177</i>

Table 8. Estimated harvest-rate (harvest per hour), harvest, and effort for the **STREAM FISHERY** with all survey areas combined for Wisconsin waters of Lake Michigan and Green Bay during 2019. Standard deviations are in italics.

Species	Harvest per hour	March/April	May	June	July	August	Sept/Oct	Nov/Dec	Season
Coho Salmon	0.0006	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	123 <i>55</i>	0 <i>0</i>	123 <i>55</i>
Chinook Salmon	0.0128	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	2,539 <i>463</i>	0 <i>0</i>	2,539 <i>463</i>
Rainbow Trout	0.0130	2,457 <i>423</i>	85 <i>27</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	37 <i>22</i>	0 <i>0</i>	2,579 <i>425</i>
Brown Trout	0.0086	102 <i>72</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	1,573 <i>588</i>	28 <i>31</i>	1,703 <i>594</i>
Brook Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Lake Trout	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Splake	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Northern Pike	0.0016	261 <i>249</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	60 <i>60</i>	0 <i>0</i>	0 <i>0</i>	321 <i>256</i>
White Perch	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Smallmouth Bass	0.0010	192 <i>234</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	192 <i>234</i>
Yellow Perch	0.0000	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
Walleye	0.0447	8,805 <i>2,239</i>	65 <i>48</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	24 <i>27</i>	8,894 <i>2,239</i>
Total Harvest	0.0822	11,817 <i>2,305</i>	150 <i>55</i>	0 <i>0</i>	0 <i>0</i>	60 <i>60</i>	4,272 <i>751</i>	52 <i>41</i>	16,351 <i>2,426</i>
Angler Hours		114,396 <i>10,143</i>	8,066 <i>1,013</i>	9,678 <i>1,163</i>	3,847 <i>679</i>	5,306 <i>839</i>	56,877 <i>4,095</i>	805 <i>147</i>	198,975 <i>11,100</i>

Table 9. Average weight, average length and standard weight of salmonids from Wisconsin's Lake Michigan creel survey during 2010 through 2019, all areas and fishery types combined. std = standard deviation.

Year	Average weight (lbs.)	± 1 std	Average length (in.)	± 1 std	Standard weight (lbs.)
Coho salmon					
2010	4.5751	2.2101	22.8805	3.7821	3.9833
2011	4.2329	1.8161	22.1766	2.6627	3.9868
2012	3.4466	1.4930	20.6385	2.8135	3.8802
2013	5.3848	2.6743	23.6931	3.4848	4.0654
2014	3.9803	1.9275	21.2898	3.0179	3.9316
2015	4.0000	1.8299	21.4375	3.3676	3.8470
2016	4.7300	1.9033	23.3117	2.6028	3.9260
2017	4.0892	2.1177	22.4113	2.6747	3.6520
2018	4.7184	2.5656	22.0095	3.8256	4.2930
2019	6.5305	2.8447	23.3983	3.3888	4.4539
Chinook salmon					
2010	8.7700	4.3646	28.0374	5.5873	8.5914
2011	10.1487	5.8206	28.0507	6.0373	10.2631
2012	10.2651	4.0305	30.0844	4.6550	8.8881
2013	10.4966	7.0121	28.1742	6.7792	10.2408
2014	11.3915	5.0015	30.0012	4.8944	10.2321
2015	10.4108	4.5165	29.7477	5.4302	9.1940
2016	10.3154	6.0139	28.1910	5.9369	10.3142
2017	11.8211	6.0754	29.6128	5.8775	10.4097
2018	13.1493	7.0864	30.6361	6.6760	10.0109
2019	13.0167	8.0081	29.9058	6.2441	10.9404
Rainbow trout					
2010	6.2216	2.5984	25.6125	3.9888	4.3301
2011	6.1851	2.6215	24.8381	3.8826	4.2453
2012	6.3634	2.4765	26.1214	3.7593	4.2812
2013	6.4838	2.6676	25.5596	3.7736	4.0376
2014	6.7767	2.8838	25.9776	3.8120	4.1739
2015	5.7588	2.4129	25.2419	4.4224	3.9037
2016	5.8938	2.5324	24.7988	3.8542	4.2855
2017	6.5706	2.7022	25.8441	4.0113	4.0464
2018	6.4566	2.9929	25.6198	4.1660	3.7403
2019	7.8170	4.6551	25.1044	4.2576	4.3547
Brown trout					
2010	7.7499	4.3883	24.2774	5.0338	3.8949
2011	4.9160	4.0068	19.7757	5.5077	4.1725
2012	4.7658	2.7347	20.7304	3.7789	4.0676
2013	5.8537	3.0350	22.0303	3.6793	3.9190
2014	5.8459	3.3608	21.2050	4.6428	4.2392
2015	5.1532	3.1955	20.9572	4.3664	3.8568
2016	5.3826	4.0422	20.7914	5.2190	3.9606
2017	5.7685	3.2424	21.9807	3.9553	3.9659
2018	6.1024	3.8362	22.9790	4.4280	3.4505
2019	10.7946	5.2367	25.5988	3.9499	5.4836
Lake trout					
2010	5.9275	3.2344	24.2994	3.9970	5.9239
2011	6.1933	3.1017	25.0834	3.6291	5.6477
2012	6.7815	3.6110	26.1740	4.1798	5.3274
2013	5.8791	2.7630	25.0904	3.1524	5.3559
2014	6.3332	3.4466	24.7813	4.0396	5.8595
2015	7.4777	3.7718	26.8174	4.1894	5.6124
2016	6.6598	3.4108	25.7354	3.8402	5.8303
2017	6.7796	3.3955	25.8882	3.9219	5.6707
2018	8.4836	4.4129	27.2497	4.0781	6.0765
2019	10.1448	5.9126	27.3294	4.4485	6.3484

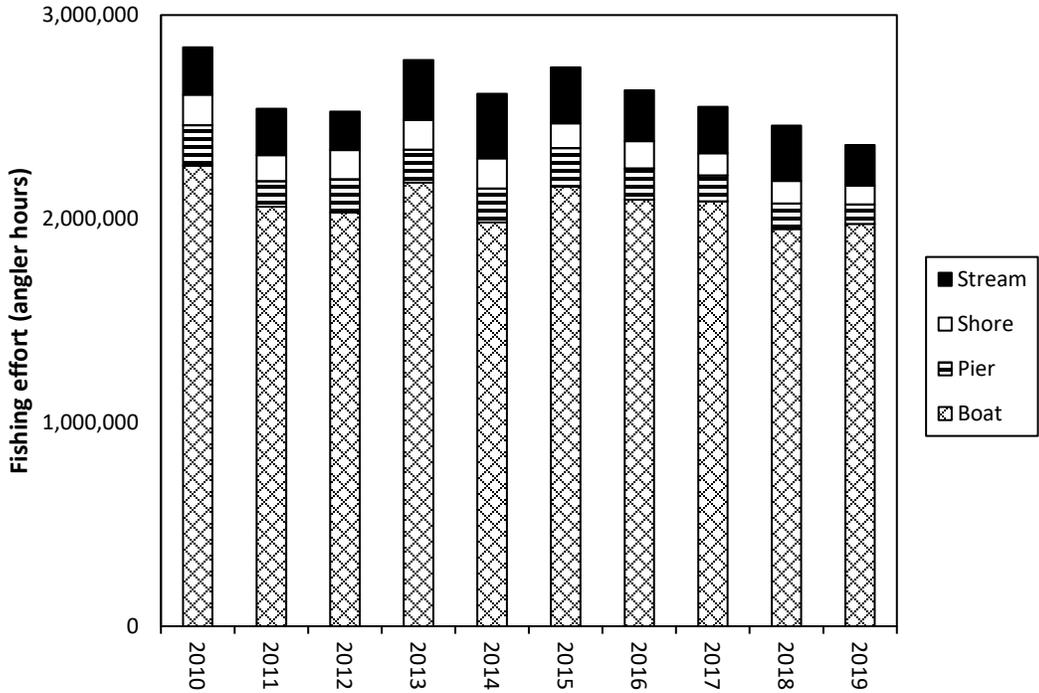


Figure 1. Fishing effort (angler hours) in Wisconsin waters of Lake Michigan and Green Bay from 2010 through 2019.

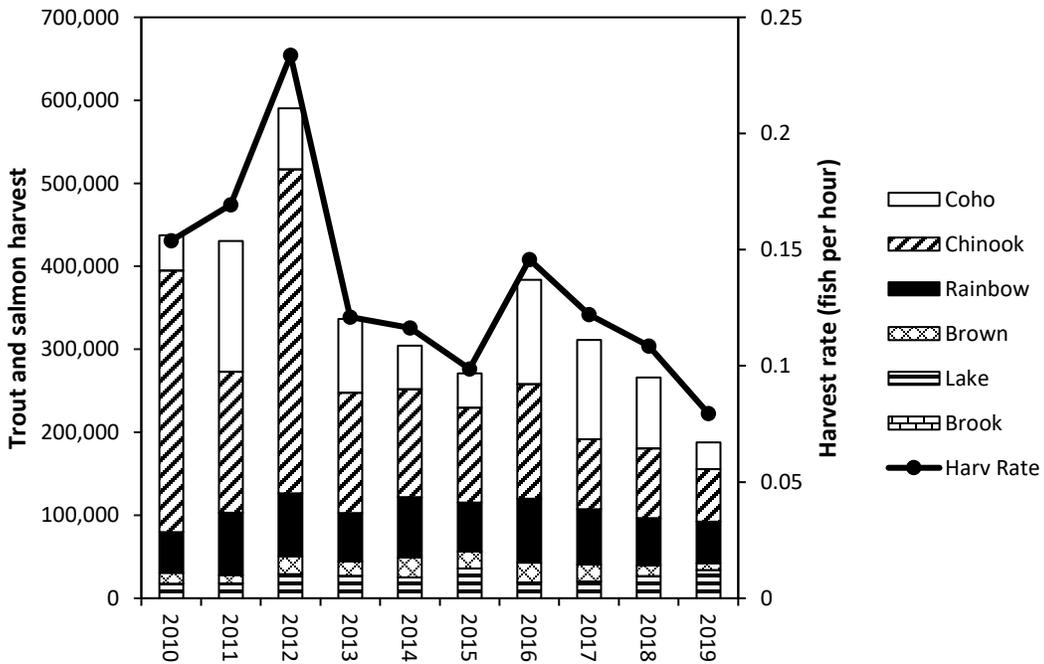


Figure 2. Trout and salmon harvest and harvest-rate from Wisconsin waters of Lake Michigan and Green Bay from 2010 through 2019.

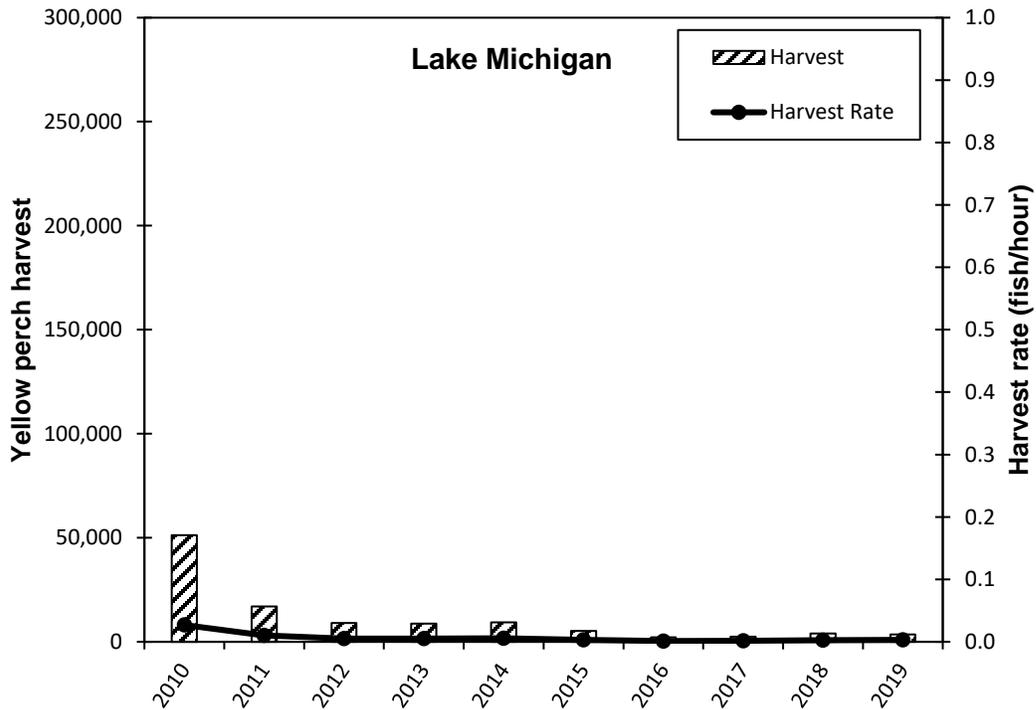
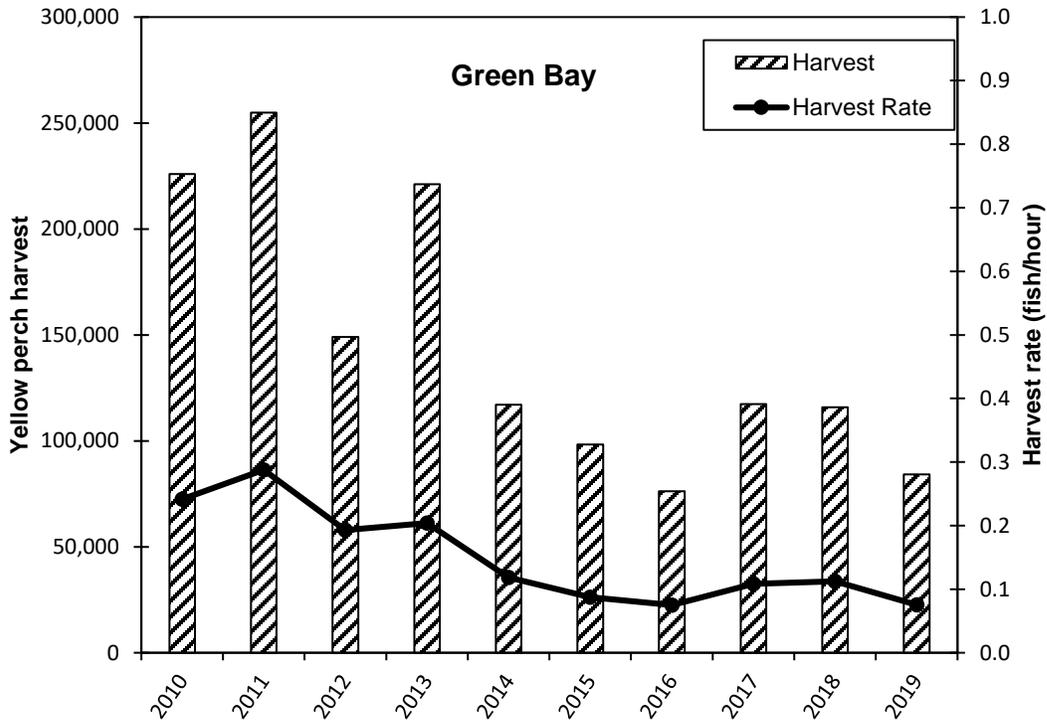


Figure 3. Yellow perch angler-harvest and harvest-rate from Wisconsin waters of Green Bay and Lake Michigan from 2010 through 2019. Note: Figure 3 reflects that some Door County sites represent Green Bay for yellow perch harvest statistics.